

ABSTRACT OF THE DISCLOSURE

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A fabrication method for a multi-layered thin film protective layer which is applicable on a substrate comprising a peripheral circuit area and a pixel cell area is described. Metal layers and pixel cells are formed on the peripheral circuit area and the pixel cell area, respectively, wherein an insulation material is formed in the interspace between the metal layers and between the pixel cells to provide a sufficient separation. Thereafter, a first oxide layer, a silicon nitride layer and a second oxide layer are sequentially formed on the pixel cells and the metal layers. The second oxide layer is then patterned to define a pre-determined position of a pad spacer in the pixel cell area and the peripheral circuit area. The silicon nitride layer and the first oxide layer are further defined to form a first protective layer in the peripheral circuit area and to form a pad spacer in the pixel cell area exposing the pixel cells. A second protective layer is then formed on the exposed pixel cells.